

REMARKS

Claims 1-36 are pending in the application. Applicants respectfully request reconsideration, reexamination, and allowance of the above-captioned application.

AMENDMENTS:

The specification has been amended to remove reference numeral 9. Additionally, the specification has been amended to reflect that the drawing schematically illustrates that the inventive absorbent material is produced by air-laying textile fibres on a wire 5 to form a non-woven gauze 6 with the aid of a Fehrer K21 air-doffing apparatus card 1. Support for this amendment can be found in the specification as originally filed.

Claims 1, 16, 26, 29 and 30 have been amended to change "with an air-doffing apparatus with the aid of at least one carding element" to "with an air-doffing apparatus card." Support for this change can be found in the paragraph beginning on page 6, line 11.

DRAWING:

The Examiner has objected to the drawing under 37 C.F.R. § 1.83(a). However, the original drawing does show every feature of the invention specified in the claims, as amended. Element 9 is no longer a designation in the specification and the card is designated in the drawing with reference numeral 1.

It is known to one skilled in the art that a card is comprised of a worker roller, clearer roller and a carding drum (〇〇) as demonstrated in the original schematic drawing. As is known to one skilled in the art a Fehrer K21 air-doffing apparatus card is a type of a card. A diagram of a Fehrer K21 air-doffing apparatus card, obtained from

<http://www.hofer-liesstofftage.de/vortraege/vortrag03.pdf>, is included for the Examiner's edification. See Attachment.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw the objection to the drawing.

ART REJECTIONS:

RUFFO

Page 2 of the Office Action set forth a rejection of Claims 1-3, 7-10, 29, and 31 as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over *Ruffo et al.*, U.S. Patent No. 4,018,646. Page 6 of the Office Action sets forth a rejection of Claims 4-6 and 11-15 as being obvious over *Ruffo et al.*

The claims at issue, 1-15, 29 and 31, generally recite a product wherein a porous, penetrable, non-woven gauze is air-laid with an air-doffing apparatus card. Absorbent material is then obtained by directly dry-laying the cellulose fibers onto the newly formed gauze so that sufficient bonding occurs without any bonding agent.

The absorbent material of the present invention is comprised of two elements:

- (1) mat of dry-laid cellulose fibers; and
- (2) a porous, penetrable gauze layer.

Ruffo does not teach such an invention. The Examiner asserts that the material of *Ruffo* appears to be the same as the claimed invention although it may not be produced in exactly the same way. However, the material of *Ruffo* is a different material made a different way.

Moreover, *Ruffo* provides no suggestion or motivation to modify this different material such that one skilled in the art would arrive at the presently claimed invention.

As discussed in the specification at page 4, the claimed process of air-laying the textile fibers uses an air-doffing apparatus card to create a specific porous, easily penetrated non-woven gauze, such that air-laid cellulose fibers can penetrate into the gauze and become integrated therewith. One reason this specific type of porous, easily penetrated (by cellulose fibers) gauze is created is that the card aligns the textile fibers so that they are generally aligned in one direction. Further, the card reduces the number of fiber clumps which are laid on the wire. As a result, the non-woven gauze is more easily penetrated by the short cellulose fibers, allowing the resulting mat to be sufficiently bonded without any bonding agent.

Ruffo does not teach the specifically claimed porous, penetrable gauze layer. The gauze layer of the present invention is porous and penetrable to allow the cellulose fibers to effectively penetrate the gauze fiber interstices and form an integrated layer with the textile fibers without the need of a binder.

Ruffo teaches textile fibers that have been individualized by lickerins. Column 17, lines 53-64. Lickerins defibrate the fibers but only to a certain degree. Small chunks and bits of fiber are left within the layer that is air-laid. Moreover, the fibers are air-laid in a random pattern. This is an important difference that is further exemplified by the fact that *Ruffo* only teaches bonding techniques that require adhesive binder or mechanical interlocking by means of needle looms, high pressure water streams and the such. Column 13, line 34 through Column 14, line 2. Such bonding techniques are required with the gauze taught by *Ruffo* because it cannot be penetrated by cellulose fibers in a manner that

provides sufficient bonding. Therefore, *Ruffo* does not teach or suggest the specifically claimed porous, penetrable gauze layer.

Also, the Examiner has asserted that *Ruffo* teaches a comparable two layer system at column 22, lines 17-34. However, this two layer web is comprised of gauze that is not similar to the claimed gauze because it is air-laid differently and cannot be penetrated by cellulose fibers so that they may be sufficiently bonded. Moreover, the described two layer system in *Ruffo* is laid such that the bottom layer is cellulose fiber and then textile fibers are laid on top of that cellulose layer. This results in an absorbent material very different from the present invention. Merely flipping this material over so that the cellulose fibers are on top of the textile fibers does not provide or suggest a material according to the present claims. The present claims recite a specific porous, penetrable gauze (made with a card) wherein cellulose can effectively penetrate the gauze fiber interstices and form an integrated layer with the textile fibers without the need of a binder. The two layer system of *Ruffo* is quite different. Because the cellulose is air-laid first, followed by randomly laid, "chunky" textile fibers, there is not sufficient bonding as the cellulose cannot effectively penetrate the gauze interstices. Thus, the different process of the present claims results in a substantially different product from that of *Ruffo*.

The material of *Ruffo* is different than the presently claimed material. *Ruffo* does not teach or suggest the specific porous, penetrable (penetrable to cellulose fibers) gauze layer. *Ruffo* also teaches a two layer material that is produced in a substantially different manner which results in a substantially different product.

For at least these reasons, claims 1-15, 29 and 31 are neither anticipated nor obvious based on the disclosure of *Ruffo*.

Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-15, 29, and 31 over *Ruffo*.

MATSUMURA

Claims 1-32 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura et al.*, U.S. Patent No. 3,984,898, in view of *Ruffo et al.*, U.S. Patent No. 4,018,646, and *Fehrer*, U.S. Patent No. 4,972,551.

Claims 1-15, 29 and 31 are directed to an absorbent material or structure and claims 16-28, and 32 are directed to a method of producing an absorbent product. However, the claims at issue generally recite a product or a method for producing a product wherein a porous, penetrable (to cellulose fibers), non-woven gauze is air-laid with an air-doffing apparatus card. Absorbent material is then obtained by directly dry-laying the cellulose fibers onto the newly formed gauze so that sufficient bonding occurs without any bonding agent.

The combination of *Matsumura*, *Ruffo*, and *Fehrer* does not teach or make obvious the present invention. *Matsumura* does not teach or suggest that bonding occurs in the absence of a bonding agent, but instead employs a binder. Also, *Matsumura* does not teach or suggest the specifically claimed porous, penetrable gauze. The gauze layer is porous and penetrable to allow the cellulose fibers to effectively penetrate the gauze fiber interstices and form an integrated material with the textile fibers without the need of a binder. These deficiencies are not remedied by *Ruffo* or *Fehrer*.

A. MATSUMURA DOES NOT TEACH THAT BONDING OCCURS IN THE ABSENCE OF A
BONDING AGENT

As conceded by the Examiner, *Matsumura* does not teach that bonding occurs in the absence of a bonding agent, but instead employs a binder. The Examiner relies on *Ruffo* to cure this deficiency. Specifically, the Examiner relies upon *Ruffo* for the conclusion that mechanically interlocking the fibers with a needle loom would have been obvious to use in *Matsumura* to bind the web as an equivalent to using a binder. With due respect, the teachings of *Ruffo* do not cure the deficiency of *Matsumura*.

Based on the above-mentioned teachings of *Ruffo*, one of ordinary skill in the art would not be motivated to substitute mechanical bonding with the adhesive bonding taught by *Matsumura*.

Ruffo does not teach that the use of a bonding agent and mechanically interlocking the fibers are "equivalent" methods of bonding fibrous webs. In fact, *Ruffo* teaches that the "particular type of bonding technique chosen will depend on various factors well-known to those skilled in the art, e.g. the type of fibers, the particular use of the products, etc." See Column 12, line 65 through Column 13, line 1. *Ruffo* does not teach that one skilled in the art can randomly substitute mechanical bonding for adhesive bonding. Instead, *Ruffo* is simply suggesting that, based on a particular set of factors, a particular type of bonding may be used. In *Matsumura*, one skilled in the art selected binders as the bonding technique of choice based on their particular set of factors. *Matsumura* provides no suggestion to modify this choice of the use of binders. That is, *Ruffo* simply suggests that one skilled in the art will pick a bonding technique based on various factors and has not

suggested, with the set of factors in *Matsumura*, a substitution of mechanical binding for the use of adhesive binders for the *Matsumura* set of factors. Thus, the asserted teaching of *Ruffo* provides no motivation to substitute mechanical bonding for adhesive binders based on the *Matsumura* set of factors.

Accordingly, based on the above-mentioned teachings of *Ruffo* and *Matsumura*, one of ordinary skill in the art would not be motivated to substitute mechanical bonding with the adhesive bonding taught by *Matsumura*. The Examiner relies upon *Fehrer* only for the teaching of a card. Thus, *Fehrer* does not otherwise overcome the deficiency of the combination of *Matsumura* and *Ruffo*.

B. MATSUMURA DOES NOT TEACH THE CLAIMED POROUS, PENETRABLE GAUZE

The present invention describes a material that has a specific porous, penetrable gauze. This is obtained by means of carded fibers.

First, such a material is not taught by *Matsumura*. The Examiner asserts that this is remedied by the teachings of *Fehrer*. Specifically, the Examiner asserts that one of ordinary skill in the art would have been motivated to employ the apparatus of *Fehrer* to form the fabric of *Matsumura* because *Matsumura* teaches that carded fibers should be supplied to the air doffing apparatus. However, *Matsumura* does not teach that carded fibers should be supplied to the air doffing apparatus. Instead, when carding is mentioned, in Column 8, lines 35-38, it is stated that only a fiber lap was previously opened by carding. By the very nature of a fiber lap, the fibers will necessarily be pressed back together, negating most of the benefit obtained from the carding process. That is why *Matsumura* teaches the use of a lickerin to defibrate the fiber lap, which does not provide

the porous, penetrable gauze of the present invention. Thus, *Matsumura* does not teach that carded fibers should be supplied to the air doffing apparatus. Therefore, it is improper to combine *Fehrer* with *Matsumura* to obtain the material of the present invention.

However, even if the carding apparatus of *Fehrer* was improperly combined with the teaching of *Matsumura*, the porous, penetrable gauze of the present invention would still not be obtained. This is because the method of *Matsumura* requires a seal roll to protect the textile mat from blow back. Column 8, lines 51-55. This seal roll compresses the textile mat so that the porous, penetrable gauze layer of the material of the present invention is not obtained. After the seal roll compression, the gauze layer will not be penetrable to the cellulose fibers such that the cellulose fibers can effectively penetrate the gauze fiber interstices and form an integrated material with the textile fibers without the need for a binder.

Accordingly, it is improper to combine *Fehrer* with *Matsumura* to obtain the material of the present invention. However, even if improperly combined, the presently claimed invention is not taught.

Accordingly, claims 1-32 are clearly patentable over the combination of *Matsumura*, *Ruffo*, and *Fehrer*.

Claims 33-36 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Matsumura et al.*, U.S. Patent No. 3,984,898, in view of *Ruffo et al.*, U.S. Patent No. 4,018,646, and *Fehrer*, U.S. Patent No. 4,972,551, and further in view of WO 97/45083 to *Rosseland*.

Claims 33-36 depend from either claims 1 or 16 and are patentable over *Matsumura*, *Ruffo* and *Fehrer* at least for the reasons set forth above. The Examiner relies on *Rosseland* solely for the teaching that HTCTMP and flash dried pulp can be employed to form airlaid nonwoven. Thus, *Rosseland* does not otherwise overcome the deficiency of the combination of *Matsumura*, *Ruffo* and *Fehrer*.

Accordingly, claims 33-36 are patentable over the combination of *Matsumura*, *Ruffo*, *Fehrer*, and *Rosseland*.


Accordingly, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

All of the outstanding matters having been addressed, favorable action on the application is requested. Should the Examiner have any questions regarding this Amendment, or regarding the application in general, she is invited to contact the undersigned at the number listed below.

Respectfully submitted,

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ATTACHMENT

Diagram of a Fehrer K21 air-doffing apparatus card, obtained from

<http://www.hofer-liesstofftage.de/vortraege/vortrag03.pdf>

FEHRER K21

Faserspeisung

